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Abstract

All around the world, governments are eagerly looking toward a digital future, but their view is obstructed by the challenges they face in the modernizing such vast enterprises. This case study demonstrates how a government agency developed and implemented an e-procurement system. This study does not represent the overall picture of building an e-government, but as a snapshot in bringing out a number of issues, which are currently challenging many such projects and can have further implications for other projects around the world. Finally, based on the findings, we learned that implementing e-government initiative is rather complex and different from a normal electronic commerce (e-commerce) relationship. Specifically, three issues were identified from this study: continuous technical challenge, enhancement of user participation, and organizational re-arrangements. While these three issues are by no means comprehensive and representatives of all e-government initiatives, we nevertheless hope to provide a foundation for further discussions on this increasingly important area of research as well as practice.

Keywords: e-government; G2B E-commerce practice; e-procurement systems; Case Study

1. Introduction

In the electronic commerce (e-commerce) era, citizens and business owners having had increasing exposure to the offerings of the Internet and other digital tools such as wireless telephony now expect the same immediacy from one of their most important and often challenging relationships with - their government. From Internet, web-based portals to digital kiosks in public buildings, governments at all levels are attempting to provide real time interactive lines of communication.

Despite the increasing efforts of adopting web technology in recent years, most e-government efforts have concentrated on putting up a web page (Seavey, 1996). However, this administration-focus has gradually changed to become a customer-focus serving citizens and trading partners directly by providing services, information and transactions directly. This has been termed as “electronic government,” or “electronic commerce” within the context of government services (Stratford and Straford, 2000). A number of other definitions for e-government have been offered in the existing literature. For instance, e-government is considered as a guiding vision towards modern

administration and democracy (Wimmer and Traunmuller, 2000). According to them, e-government is concerned with the transformation that government and public administration have to undergo in the next decades. Lawson (1998) suggested that e-government is one in which the public service operates in a "one-stop, non-stop" way, does "more for less," and "power is transferred to people." While Tapscott (1996) defined e-government as an "internetworked government," Nadler and Tushman (1997), on the other hand, emphasised that technology is only "one of the structural materials". Taking a more comprehensive view, Aichholzer and Schmutzer (2000:379) sees "e-government covering changes of governance in a twofold manner: (1) transformation of the business of governance, i.e. improving service quality delivery, reducing costs and renewing administrative processes; (2) transformation of governance itself, i.e. re-examining the functioning of democratic practices and processes. Lenk and Traunmuller (2000) claimed e-government as a powerful guiding vision for the transformation which government and public administration have to undergo in the next decades. They suggest that e-government can be seen from four perspectives: the addressee's (citizen) perspective, the process (reorganization) perspective, the (tele)cooperation perspective, and knowledge perspective. In particular, they pointed out that e-government relies on a fundamental redesign of the interaction between public administration and citizens (including commerce firms) which is coupled with a reorganization of the business processes within public administration. According to Wimmer and Traunmuller (2000), the challenge of e-government is to find a successful way of re-engineering and distributing the administration's knowledge. In particular, Aicholzer and Schmutzer (2000) discuses 3 major organizational challenges faced by initiatives to implement e-government: (1) guiding principles and problems of restructuring administrative functions and process; (2) requirements of and barriers to coordination and cooperation within public administration; (3) the need to organize monitoring of performance in terms of e-government. In developing an understanding of this pioneering task, this study concentrates on a G2B relationship in which the development and implementation processes of a government-based e-procurement system are explored. This particular G2B e-procurement system does not represent the overall picture of building an e-government, but it helps to bring out a number of complex and challenging issues. A case study of a G2B e-procurement system developed and implemented by a government agency is presented.

2. Methods

The six-month study was conducted in the summer of 2000 through semi-structured interviews with open-ended questions focused on when, what, how and why certain problems had taken place in the process of e-government initiatives. The main fieldwork was conducted on-site at GeBIZ (Government Electronic Business) Centre, with semi-structured interviews carried out with managers and system developers. Each interview lasted from one to 2 hours and was tape-recorded. Interviews were based on five main issues: 1) gathering information on the background of the organization and how it got started in developing GeBIZ; 2) exploiting benefits of GeBIZ; 3) anticipating business, technical, security and administrative issues pertaining to GeBIZ; 4) articulating GeBIZ development and implementation strategy, experiences and problems encountered; 5) identifying and exploring the dynamic interactions between the trading partners and GeBIZ users. A total of more than 250 pages of transcription were generated from the interviews. Also, interviews were further supplemented by direct observations and

written documents such as annual reports, secondary data, business newspapers, and other trade magazines.

3. The Case

While most governments have been criticised for being slow in adopting e-commerce practices, there are a few exceptions. In particular, Denmark, the Netherlands and Singapore have been highlighted as pioneers in this area (Faltch, 1998; Tan, 1998; Trauth et al., 1998). In order to explore issues pertaining to e-government, this study has selected the development and implementation processes of an e-procurement system developed by Systems and Computer Organization (SCO), a member of Defence Administration Group, Ministry of Defence (MINDEF) of Singapore as the focus of this case study. SCO was established in September 1979 as an IT arm of MINDEF, provides expertise and advice on management science (e.g. optimisation and simulation) and technology systems (e.g. computers and telecommunications) to MINDEF. The overall mission of SCO is to enhance the efficiency, productivity and effectiveness of MINDEF in key areas of e-commerce, logistics, finance, training, planning, etc. Specifically, its responsibilities include: building and maintaining in-house systems, managing computer centres as well as MINDEF's Internet and e-mail networks, and engaging in business process re-engineering. With the support of 500 staff members, SCO has established a track record of introducing IT in areas such as manpower, logistics, finance, training and procurement.

In mid-1998 the Ministry of Finance (MOF) in collaboration with National Computer Board (NCB) decided to introduce a one-stop public procurement centre (OPPC) within the civil service. Initially MOF searched the market for a software package that could meet the procurement needs of the civil service, but soon realised that no such software package was available capable of meeting their requirement. Finally they decided to invite SCO to demonstrate its two procurement systems: MINDEF Internet Procurement Systems (MIPS) and Procurement Information Management System (PRIMS-II). As one GeBIZ programme manager recalled,

> "We were invited to demonstrate PRIMS-II and MIPS to MOF in 1998. After that some follow-up was done. They found that together with PRIMS-II and MIPS they can actually fulfil the 80% of civil service requirements. From there they decided to move onto conceptualising things for a one-stop public procurement standard (OPPC). The system was subsequently renamed as GeBIZ (www.GeBIZ.gov.sg) in early 1998."

After observing the characteristics of MIPS and PRIMS-II, MOF found that by adopting the concept of these two systems, it was possible to introduce a one-stop public procurement centre which allows public service officers from different government agencies to conduct procurement and revenue tender activities quickly and efficiently.

3.1. The GeBIZ Components

After few months of development, GeBIZ (see Table 1 and Figure 1) was launched in June 2000 as one of the largest government Internet-based e-commerce initiatives (Pang, 2000). In order to speed up the development process, MOF decided to assign GeBIZ Enterprise and GeBIZ Partner development responsibility to SCO, while the other component of GeBIZ, GeBIZ Professional was assigned to an IT consulting firm. As a G2B portal, it is an integrated one-stop centre for all ministries, statutory boards and government bodies that will allow trading partners, prospective revenue tender bidders and government procurement officers to interact with the government for procurement and revenue tender activities. GeBIZ, with the support of the MOF, aims to allow public service officers to easily conduct procurement and revenue tender activities.

Component	Roles	Functions
GeBIZ ENTER-PRISE	It caters mainly to the Public Service Officer's needs, which are characteristically non-complex. These non-complex buys could include purchasing from the Period Contracts.	Catalogue Buy; Self-service Buy; Assisted Buy; Quotation/Tender Publication; Catalogue Management; Revenue Tender Reports.
GeBIZ PARTNER	This component is implemented as an Internet website and serves as the 'shopfront' for GeBIZ. All business opportunities and revenue tenders from the entire government, results of quotation and tender bids, and functions to facilitate trading with the government, are available in this application.	Supplier Registration, ITQ/ITT Activities; Invoice Submission; Payment Status Checks; Updating of Supplier Catalogue/Profile; Revenue Tender Activities
GeBIZ PROFESS-IONAL	GeBIZ Professional contains a rich set of functionalities required for carrying out complex purchase and support procurement as a centralised function in an organization.	ITT/ITQ; Contracting; Post Contract Management

Table 1. Summary of GeBIZ components and its functions

The GeBIZ Enterprise and Partner were launched in June 2000, whereas GeBIZ Professional was launched at the end of year 2000. GeBIZ Enterprise and GeBIZ Professional are used by the public service, and together they provide all the functions needed to carry out procurement and revenue tender activities. Both components were interfaced with GeBIZ Partner, an interactive Internet website that facilitates trading partners in trading with the Government. In a typical scenario, a public service officer would be able to raise an ITQ through GeBIZ Enterprise, and have it automatically published in GeBIZ Partner once approved. Interested suppliers could then view this ITQ through GeBIZ Partner, and submit their bids. The quotations submitted are automatically channelled back to GeBIZ Enterprise

after the closing date for further processing. Purchase Orders (PO), tender documents, invoices, revenue tender bidding and other information will also flow between GeBIZ Enterprise, Professional and GeBIZ Partner in the same manner.

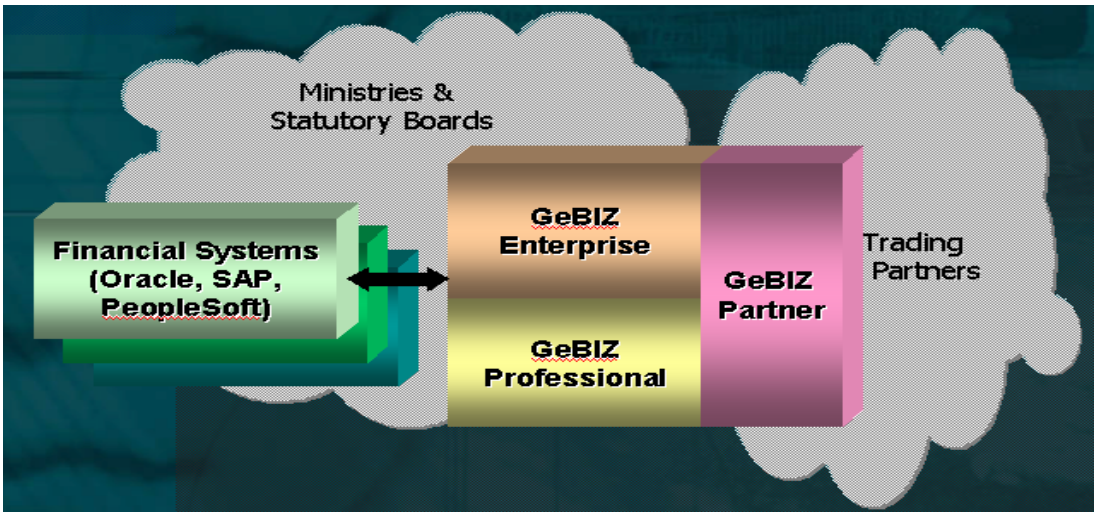

Figure 1. Components of GeBIZ application (Source: GeBIZ service centre)

3.2. Challenges and Problems Encountered in the Implementation Process

Despite strong government backing of the initiative, the development and implementation process of the GeBIZ systems was not without problems. In order to understand the complex nature of the challenges faced by the GeBIZ team as well as the users, the following section highlights some of the technical and organizational problems encountered and solved by the team. During the implementation process, GeBIZ team has faced some technical issues, especially those relevant to connectivity. Those have arisen as a result of IP blockage, incorrect proxy settings and incompatibility of client Internet browsers. For example, as explained by the GeBIZ programme manager:

> "This kind of problem happened a few times as when procuring agencies such as statutory boards or ministries try to access GeBIZ, they are unable to connect to GeBIZ server. This is perhaps because firewalls and hardware (proxy server, IP screening routers etc) of these procuring institutions are not configured to acknowledge GeBIZ even though it's on the same network segment acknowledged by Infocomm Development Authority (IDA)."

GeBIZ team attempted to solve this connectivity problem by coordinating with the I.T departments of procuring agencies, as elaborated by GeBIZ programme manager:

> "I could remember there was one procuring agency tried getting access to GeBIZ. They failed. After checking with our engineers, we were pretty sure that everything was OK from our side. We then contacted the agency's IT

> department and request their people to make sure they got everything correct. This caused a big hoohaa! After we told them what to do in terms of proxy settings and finally they got it."

Apart from procuring officers, sometimes trading partners also experienced connectivity problems because of their complex network infrastructure, as one GeBIZ programme manager explained citing an example:

> "Once, one of our big vendors also faced connectivity problems. This time it was not because of their inexperience with our specifications. Rather it was due to security restrictions set up in their network. When they can't access GeBIZ Partner, their accounts manager would accesses GeBIZ Partner by dialling up in order to view PO which has caused a lot of problems."

In other cases, the connectivity problem could have been caused by GeBIZ server's IP blockage by IDA site administrators, as described by the Project Manager GeBIZ networks:

> "Sometimes the site administrator blocks the IP address of our GeBIZ web server. As a result, users cannot access GeBIZ web site. In order to resolve this problem, we usually refer to the site preparation guide, which contains all information relevant to client browser set-up and proxy settings. If that doesn't work, we would contact the site administrator as every site has a site administrator from IDA and IDA knows who our administrator is. Subsequently, we would then contact that particular site administrator and inform him or her about the particular connectivity problem, they then release our IP address so that others could access properly."

It was also possible, as claimed by an informant, that the reason why the trading partners were unable to access GeBIZ site was due to the incompatible use of Internet browsers by procuring agencies or suppliers. As one informant elaborated this problem:

> "Sometimes users would call us and ask they can't access GeBIZ. After some investigations, we often come to the conclusion that the reason of the problem is due to the fact the particular procuring agency or suppliers might have upgraded their Internet browser or they might not be using the right version of the Internet browser recommended by GeBIZ service centre (that is Internet Explorer 4/Netscape Communicator 4.04, or above, or they don't mention the correct host name in client's host file)."

In addition to connectivity problems, technically GeBIZ also faced challenges in designing interfaces to integrate the GeBIZ system with the financial systems of

procuring institutions - in order to overcome the double entry of PO in two different systems. As explained by the GeBIZ programme manager,

> "Currently, for GeBIZ, the biggest limitation is that there is no interface for financial system such as NFS and FRIMS to integrate with. The problem here is if an officer goes to GeBIZ to create a purchase order (PO), he has first to go to the financial system and key in the PO and have the funds committed. Only when the funds are committed, he can then go back to GeBIZ to issue a PO. This is obviously repetitive work"

The frustration continued as requests by the trading partners for the GeBIZ to provide integration with their information systems flooded in. As one GeBIZ Partner project manager commented:

> "Suppliers are quite straight forward, they want us to integrate their information systems with GeBIZ. They don't quite understand our frustrations in not able that provide that functionality, at least not in the near future, because we are government agencies. Unlike normal business relationships, transactions between trading partners can be easily made transparent via information communication technologies. They wanted to be able to view PO, ITQ/ITT, payment status and even sending out invoices to GeBIZ Enterprise to claim their payments instead of logging onto GeBIZ Partner again to do that. In other words, they want to have a seamless transaction"

While most of the earlier problems centred around complaints from the users in terms of technical integration as well as connectivity concerns, it was becoming obvious in the process that not all the faults were caused by the users. In one incident, delivery of procurement documents between the users and procurement officers via Lotus Notes mail was unsuccessful. This again caused some confusion and raised a few questions about the reliability of the system. Project Manager GeBIZ Enterprise explained the cause of this problem,

> "Basically what happened was that in MIPS, we were using Microsoft mail feature for transmitting documents, whereas in GeBIZ we are using Lotus Notes to mail our documents for approval. Hence it was a new experience for us, too."

In an effort to rectify some of the technical problems encountered and to improve the reliability of the system, some corrective steps were taken first to work with the trading partners in finding out about their requests in terms of new features needed in the system. With the help of the tracking feature added to the system, the performance of suppliers, based on their order fulfilment time and quality of goods delivered, was also evaluated. According to an informant:

> "To ensure reliability of the systems, we have introduced a supplier performance tracking feature to GeBIZ Enterprise that helps both parties to track the status of the deliveries. Based on that, we then evaluate the performance of our suppliers, keeping in view their order fulfilment time and quality of items delivered by them to procuring institutions. Subsequently, we decide whether suppliers' contracts should be renewed or terminated."

Despite some of the laudable efforts in rectifying technical problems, a number of non-technical problems related to the institutional nature of a government agency begin to surface, and hence directed management's attention towards proposing more changes in terms of existing practices in the procurement process. To demonstrate the nature of the problem an informant explained:

> "In the current practice, the required number of approval by officers is different from one ministry to another. This has implications for how an approval process is designed and managed within the system. In particular, traditional methods of approving procurement-based documents must be streamlined. More business process reengineering is needed so that all institutions could adopt one single approach for approving (procurement) documents in order to provide efficiency to the procurement process."

There were also some communication problems, in particular, between the GeBIZ team and the IT consultants in dealing with the outsourced project (GeBIZ Professional), as cited by an informant.

> "For example, we often exchange our proposals with each other and decide how the system would integrate at the end of the day. But many times our propositions mismatch due to different database schema, applications and dissimilar platforms. For example, we are using J2EE and they are using Delphi, this mismatch results in a deadlock situation. To overcome this situation we suggest to the consultants that they apply their proposal and see the impact of change and then apply ours. If users are happy with changes, then changes are implemented on a permanent basis."

Similar communication breakdown took place again, as users' frustration towards the system grew due to the confusion of procurement related policies. As explained by an informant,

> "We also face resistance from users in their GeBIZ Enterprise usage. For example, when they use GeBIZ Enterprise they seem quite confused about procurement and approval rules (set by MOF). They frequently communicate with GeBIZ centre asking for rules to procure or approve. When they communicate with GeBIZ

team, sometimes there is disagreement them insisting on rule changes for which we have no authority."

Last but not least, with the technical as well as organizational problems pretty much taken care of, the next challenge was then to encourage more users to participate in the e-procurement process. To do so, the GeBIZ team initiated a programme of training for the suppliers as well as procuring officer. Specifically, GeBIZ team adopted two methods to train users and suppliers. The first allowing them to practice with GeBIZ prototype (offline GeBIZ system), the second allowing them to practice with a dummy GeBIZ web site.

4. Discussion

The purpose of this case study was to provide a snapshot of the on-going critical problems and challenges faced by an e-government agency in developing and implementing e-procurement systems and to offer insights into how the government agencies could effectively manage the processes. From the findings of this particular e-procurement system study, we learned that implementing an e-procurement system within the context of e-government is rather complex and different from a normal B2B relationship. To be successful, it needs to possess the ability to integrate with different systems across various government agencies as well as trading partners providing products and services. Specifically, three issues were identified in this study as critical lessons learned (1) continuous technical challenge; (2) enhancement of user participation; (3) organizational re-arrangements.

4.1. Continuous technical challenge

Based on the findings, we conclude that there are continuous technical challenges faced by the GeBIZ team as well as users at large. Specifically, there are still connectivity and integration issues to be resolved. As suggested by some of the informants, GeBIZ team, procurement officers and trading partners were facing connectivity and access problems due to several reasons: IP blockage, proxy settings and compatibility problems.

In particular, we have observed that connectivity is one of the most frequently occurring technical problems. We found that proxy settings, inappropriate configuration of hardware and software (firewall & Internet browser settings or version) at user/suppliers end are the main causes to the connectivity problems. This is probably due to the fact that at the user/supplier end there were a lot of firewalls and security restrictions in existence. As such, they had continuous difficulties in getting access to the GeBIZ site properly. We attributed two factors to the connectivity problem. One, negligence by IT staff in referring to appropriate proxy settings, as well as the right usage of Internet browser recommended by GeBIZ team. Despite causing some problems to the existing operation, this particular concern was rectified by introducing guides and regulations to the implementation process. The other factor is to do with the non-cooperative behavior of I.T staff from the procuring agencies and trading partners in working with the GeBIZ team. This is particularly obvious as when a connectivity problem arises; users would hold GeBIZ team responsible for it, even though that problem could have very well existed at their end due to browser incompatibility or incorrect proxy settings. We learned from the study that there is a need to have a co-ordination mechanism (including

coordinators from different agencies and businesses) that facilitates some of the technical as well as non-technical activities during the implementation process.

On the other hand, we also found that the integration of financial systems with GeBIZ is a critical issue that needs attention. Presently, due to unavailability of the interfaces between GeBIZ and other financial systems in various departments and agencies, trading partners' payments are being delayed as staff at various government agencies had to perform extra tasks in entering data into two different systems. In other words, payment is still done in the traditional manner, making GeBIZ one-step away from a fully automated system. This problem is perhaps due to the high cost of migrating or integrating existing government financial systems to GeBIZ. Such reluctance is also in line with what was suggested by Baron et al., (2000) that most organizations have a significant investment in their existing (legacy) systems. Any attempt in abandoning such systems is often simply not economically feasible until reaching the replacement point in their life cycle.

Another integration problem encountered by the GeBIZ team was to integrate suppliers' information systems with GeBIZ. This issue was originally raised by the suppliers (trading partners) as they suggest that GeBIZ be integrated with supplier's information systems, so that there will be no need for suppliers to log onto GeBIZ Partner separately to view PO, ITQ/ITT, payment status, etc while in GeBIZ Enterprise. In other words, every feature that GeBIZ Partner is offering should be activated in suppliers' information systems. Such integration of GeBIZ with supplier's information systems could potentially save suppliers' time from re-entering information in their information systems after viewing at GeBIZ Partner. This view of integrating trading partners' (suppliers) information systems with procurement officers' (customers) information systems was similar to what was proposed by Archer et al., (2000). According to them, similar to this case, an inter-organizational information systems (IOS) link between supplier and customer may be established if the relationship is collaborative. This link is capable of managing transactions that derive from the contract, through EDI interfaces that may include customer and supplier financial institutions. For example, this link can also include just-in-time shipping and other supplier services such as the management of the customer's inventory and component quality functions (Archer et al, 2000).

Besides the integration challenges, we also found the failure of workflow engines to be problematic. The possible cause of this failure could be that there were inappropriate interfaces between GeBIZ system and Lotus Notes. As a result, procurement officers and users were unable to exchange procurement-based documents such as PR/ITQ etc. We concluded that this particular problem was probably due to GeBIZ team's relatively inexperience in using application program interface (API) for providing the interface for GeBIZ system with Lotus Notes. Therefore, we suggest that in order to overcome this standardization problem - GeBIZ team must adopt a web-based approval approach. This is important as most statutory board and ministries do not use Lotus Notes for the approval of procurement documents.

In this case, most of the continuous technical challenges faced related to the introduction of e-commerce technologies. Further studies are needed to understand the nature of technologies to be developed for providing seamless communication between procurers and suppliers. Issues related integration and connectivity, especially, should be of

interest to researchers in this area. Particularly, more research work is needed to define integration and connectivity guidelines to help streamline the procurement processes (tendering, contracting and trading).

4.2. Organizational rearrangements

From a business process re-engineering point of view (Venkatraman, 1991; Swatman et al, 1994), we confirmed through our findings that implementing an e-government initiative is not merely about using technology or computerising government activities (Ang and Soh, 1995; Lee-Partridge et al., 2000) to enhance access to, and delivery of government services for the benefit of citizens, business partners and employees. We discovered that in establishing an e-procurement system for the government, some of the problems were not necessarily technical in nature, but organizational (Hwang, Choi and Myeong, 1999). In particular, one of the organizational problems we have found is related to the different methods of approving procurement based documents at each ministry and statutory board. This problem could very well become a major hindrance to the successful deployment of GeBIZ in all (150) Singaporean ministries and statutory boards, if not addressed properly in future. In this regard policy makers must streamline the procurement process of all ministries or procuring institutions by allowing them to adopt one single approach for approving procurement based documents. According to our observation this problem may be due to users' resistance and lack of coordination between policy makers, users and GeBIZ team.

Thus, further research is needed to understand how government agencies are undergoing business process reengineering (Venkatraman, 1991)? Specifically, what are some of the critical lessons learned? What has been the role of management? Should business process re-engineering come before the adoption of e-commerce technologies? Do the government-based re-engineering processes differ from those in private sector organizations?

4.3 Enhancement of user participation

One lesson we learned from this case is that e-government requires a user focus serving the public rather than having an administration-focus emphasising the needs of government officials (Hwang, Choi and Myeong, 1999). We observed that there was some resistance by some users to participating in e-procurement practices. This could due to a mismatch between what the system can offer and what users (trading partners' as well as the procuring officers) preferences are. For example, from the standpoint of the suppliers, cost can be a major factor in determining the extent of using information technology to engage in e-practices (Lan and Cayer, 1994; Bolter, 1994). Although, at the moment, trading partners (suppliers) are not charged to participate in the e-procurement system, it is likely that a fee will have to be paid for using the G2B service in the near future. This might have implications for future participation of the trading partners.

On the other hand, based on the findings, we conclude that as e-government activities become vital to citizen's daily lives, the number of on-line interactions will increase. The opportunity exists in which citizens and businesses alike find a seamless relationship, a positive interaction, and a responsiveness-to-customer satisfaction mindset. We learned from this study that these factors are important to the trading partners when implementing e-procurement systems in the public sector. To enhance user participation,

the system must be user-friendly (Lan and Cayer, 1994; Lan and Falcone, 1997; Markus and Keil, 1994) and posses the following characteristics: first, it must provide a one-stop service to government procurement and tender processes. It must have the ability to share information between services and departments, generate revenues and provide a managed service for other agencies. New users should also be educated in e-government initiatives not only for conducting procurement procedures on-line; it is an organizational transformation on a scale that will fundamentally alter the way public services are delivered and managed. It should also possess power in creating a new mode of public service. In particular, a "no gap" relationship where all public organizations deliver modernised, integrated and seamless services for their trading partners and citizens is needed. The relationship is no longer just one way; rather, it is about building a partnership between governments and their stakeholders.

In addition to proving training and education to users, additional attention must also be given to improving the ease or comfort in use of the e-procurement systems. We discovered that there were still some trading partners and government officers who prefer using telephone and fax as the main telecommunications technology. This observation implies that they were discouraged perhaps because of technical difficulties or non-technical factors. While rectifying some of the technical problems is crucial in the overall success of e-government initiative implementation, further efforts in understanding resistance or obstacles from an organizational perspective should also be pursued (Lan and Falcone, 1997). For example, communication was found to an important factor in the whole process of GeBIZ Professional development. This particular case was evident during the exchanges between the GeBIZ team and the consultants in proposing the possible design of GeBIZ Professional and as a result, communication gaps developed among the GeBIZ team members and some of the consultants.

More knowledge on how some of the pioneering government agencies have enhanced their users' participation is needed in future research. In particular, important lessons to be learned include how some agencies have addressed the mismatch between what the system can offer and what users (trading partners') preferences are. What kind of training of e-procurement systems was given to the procuring officers as well as the trading partners? How are users' feedbacks used in improving the design and implementation processes?

5. Conclusion

The shift towards a global digital economy is driving dramatic change in government operations. It has become essential to find new and innovative ways of delivering government services electronically and to develop new vision to move swiftly, safely and successfully into the future and to execute the operational strategies. Providing empirical evidence derived from the analysis of the case, this study has outlined various challenges faced by the organization during the implementation of an e-procurement project. This study argues that the development and implementation of e-government initiatives is an intrinsically complex and dynamic transformation, which requires process innovation (Galliers and Baets, 1998). Thus, the impact of such implementation has on the public institution is far greater than simply adopting a computer-based system or computerising government activities. Based on this realization, this study recognizes that there are still

very few studies that have conceptualized e-government initiatives and activities from a multi-faceted and context-dependent perspective.

As far as future research implications are concerned, further research in the area may include comparative investigations of government-based e-procurement policies and systems implemented in variant national government settings. Another issue is the question of whether the development and implementation of e-government initiatives should be outsourced (Gordon and Walsh, 1997). Since 1995, there has been a continuous global trend towards outsourcing public IT transactions (Batholomew, 1995; Caldwell, 1995; Myerson, 1996). Increasingly, governments are looking to the private sector to become involved in the business of managing and operating government IT. In other words, in addition to addressing issues similar to outsourcing in the private sector, governments must also consider the broader picture of what is best for the citizenry as a whole (Gordon and Walsh, 1997).

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